Exam # 2 Review

Multimedia and Security

review:

http://cdn.computerscience1.net/2006/fall/exams/2/2006f-exam2.pdf

Multimedia

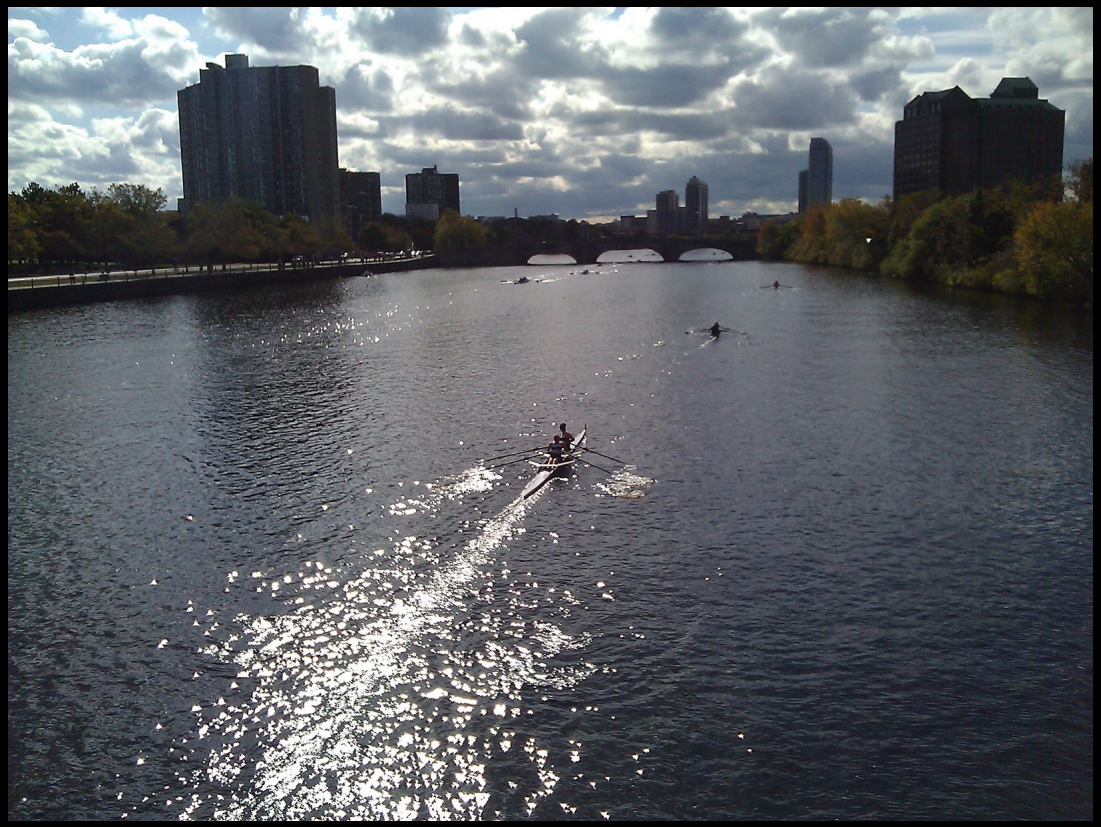
Bitmaps

+ Also known as *raster* graphics.

+ Name hints at a map of bits (*pixels*).

+ Rectangular images.

+ Commonly used for digital photographs/ pictures.



Example raster image:
Head of the Charles Regatta

Pixels

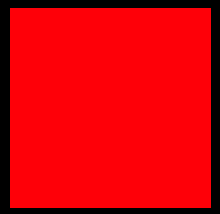
+ A single point in a raster image.

+ The smallest element of an image.

+ Contains a single color.

+ A *megapixel* is one million pixels.

+ Total pixels in an image:
  height x width.



Example of a red pixel

Colors

+ *RGB* and *CMYK* are two common color models.
+ RGB comprised of three parts: Red, Green, Blue, CMYK of four: Cyan, Magenta, Yellow, Black.

+ RGB can be represented as three bytes 0 - 255 each, or in hexadecimal notation as a concatenation of three bytes beginning with a # (known as an RGB and *hex* triplet respectively).

Colors (Cont.)

+ Commonly in 8- or 24- bit per pixel.

+ RGB is *additive* whereby if all values are 255 then the color adds up to white. This is useful because my nature all pixels on a screens are black until lit.

+ CMYK is *subtractive*, black is derived from all values being set to their maximum. Useful in print since paper is white until ink is printed on it.

File Formats

BMP

GIF

JPEG

RAW

PNG

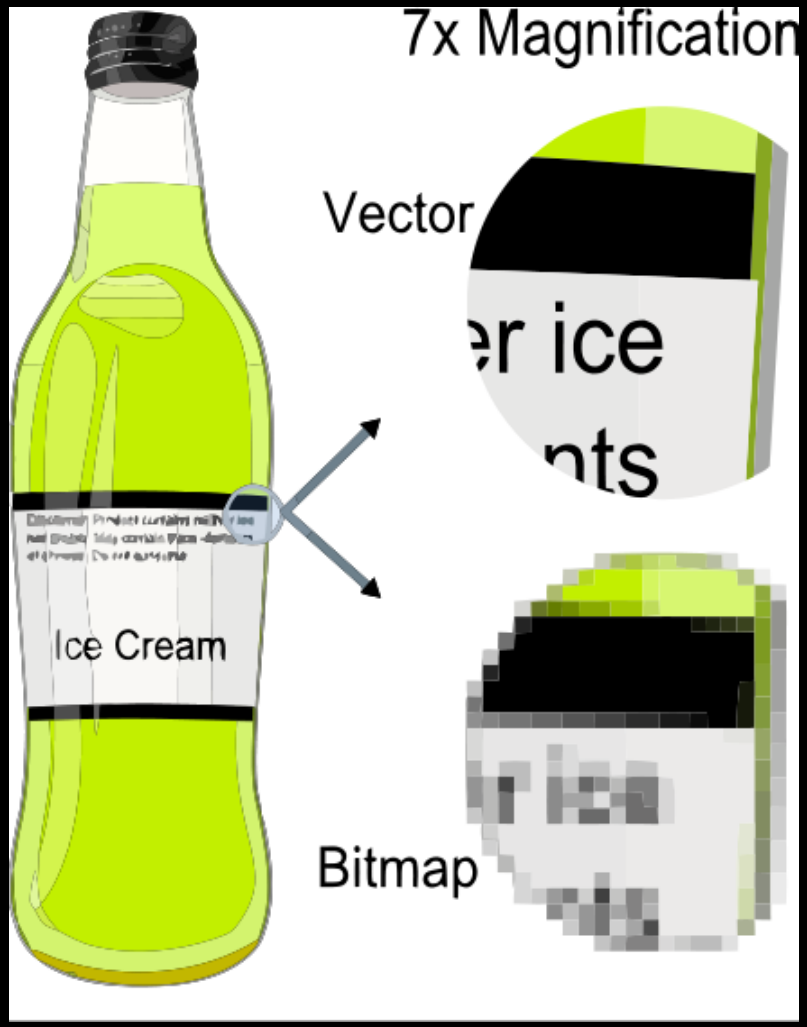
TIFF

Vector Graphics

+ Utilizes geographic primitives like polygons, circles, lines, points, etc. to represent an image.

+ Can be scaled up or down without *pixelation*.

+ Does not offer the same level of detail as offered by bitmap images.



Wikipedia

jargon:

http://cdn.computerscience1.net/2006/fall/lectures/7/j

more examples:

http://cdn.computerscience1.net/2006/fall/lectures/7/l

lossy:

mp3, H.264